REMARKS

Claims 4, 10 and 16 had been cancelled. Thus, Claims 1-3, 5-9, 11-15 and 17-18 are currently pending in the present application, none of which has been amended.

The Abstract has been amended such that the number of words is now less than 150 words as stated in the MPEP § 608.01(b). As such, the objection to the Abstract is believed to be overcome.

Rejection under 35 U.S.C. § 101

Claims 7-12 were rejected under 35 U.S.C. § 101 because the claimed invention is directed to a non-statutory subject matter. Applicants respectfully traverse such rejection insofar as it might apply to the claims as amended herein.

According to 35 U.S.C. § 101,

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Thus, the four categories of patentable subject matter enumerated under § 101 are process, machine, manufacture, and composition of matter. The Supreme Court had generally construed 35 U.S.C. § 101, broadly, noting that Congress intended statutory patentable subject matter to "include anything under the sun that is made by man." *See Diamond v. Chakrabarty*, 447 U.S. 303, 309 (1980) (quoting S. Rep. No. 82-1979, at 5 (1952); H.R. Rep. No. 82-1923, at 6 (1952)).

The Supreme Court subsequently erected some boundaries to the seemingly limitless extent of § 101 by identifying three categories of unpatentable subject matter, namely, "laws of nature, natural phenomena, and abstract ideas" in *Diamond v. Diehr*, 450 U.S. 175, 185 (1981). Of particular relevance to the present application, the *Diamond* Court had held that mathematical algorithms are not patentable subject matter to the extent that they are merely abstract ideas. *Id.* The *Diamond* Court explained that certain types of mathematical subject matter, standing alone, represent nothing more than abstract ideas until reduced to some type of practical application, *i.e.,*

"a useful, concrete and tangible result." The court refers to such judicially-created exception to the statutory subject matter as the "mathematical algorithm" exception.

However, the "mathematical algorithm" exception does not come into play for the present application, because Claims 7-9 and 11-12 clearly fall within the "manufacture" category of the four enumerated categories of patentable subject matter under § 101. The plain and unambiguous meaning of § 101 is that any invention falling within one of the four enumerated categories of patentable statutory subject matter may be patented, provided it meets the other requirements for patentability set forth in Title 35. Thus, "it is improper to read limitations into § 101 on the subject matter that may be patented where the legislative history indicates that Congress clearly did not intend such limitations." *State Street Bank & Trust Co. v. Signature Fin. Group, Inc.*, 47 USPQ2d 1596 (Fed. Cir. 1998), *cert. denied*, 119 S.Ct. 851 (1999) (*citing Diamond v. Chakrabarty*, 447 U.S. at 308).

Because Claims 7-9 and 11-12 fall within one of the four enumerated categories of patentable subject matter under § 101, the § 101 rejection is believed to be overcome.

Rejection under 35 U.S.C. § 112

Claims 1-3, 5-9, 11-15 and 17-18 were rejected under 35 U.S.C. § 112, first paragraph, for containing subject matter that was not described in the specification in such a way to enable one skilled in the art to which it pertains to make and/or use the invention. Applicants respectfully traverse such rejection.

Claim 1 (and similarly Claims 7 and 13) recites "performing segment 3 training by sending a plurality of CD symbols for a third set of symbol intervals to generate a plurality of coefficients for an adaptive equalizer within said receiving modem, wherein said third set of symbol intervals includes no more than 64 symbol intervals."

Page 11, lines 6-8 of the specification states that "[i]n accordance with a preferred embodiment of the present invention, only 64 symbol intervals are utilized to adjust the adaptive equalizer during the segment 3 training." Also, page 11, lines 23-23 of the specification explains that the sending modem performs segment 3 training by sending CD symbols for 64 symbol intervals, as shown in block **43**..." In addition, page 12, lines 23-23 of the specification concludes that "[w]ith the present invention, it is feasible to make segment 3 training shorter than what is required in the published standard because of the information, such as the gain to use, equalizer coefficients, etc., gathered in the previous sessions."

Thus, the combination of the above-mentioned teachings from the originally filled specification would support the recitations of "wherein said third set of symbol intervals includes no more than 64 symbol intervals." As such, the § 112 rejection is believed to be overcome.

Rejection under 35 U.S.C. § 103

Claims 1-3, 5-9 and 11-12 were rejected under 35 U.S.C. § 103(a) as being unpatentable over *ITU-T Recommendation V.29* (9600 bits per second modem standardized for use on point-to-point 4-wire leased telephone-type circuits, ITU, 1993) in view of *FastPOS* (High-Speed Modem Technology for Transaction Terminals, Hypercom Corporation, 1998). Claims 1-3, 5-9 and 11-12 were also rejected under 35 U.S.C. § 103(a) as being anticipated by *Yaguchi et al.* (US 5,337,332) in view of *FastPOS* (High-Speed Modem Technology for Transaction Terminals, Hypercom Corporation, 1998). Applicants respectfully traverse such rejection.

Claim 1 (and similarly Claims 7 and 13) recites "performing segment 3 training by sending a plurality of CD symbols for a third set of symbol intervals to generate a plurality of coefficients for an adaptive equalizer within said receiving modem, wherein said third set of symbol intervals includes no more than 64 symbol intervals."

In the alternative, if the Examiner maintains the above-mentioned § 112 rejection, Applicants would like to incorporate the contents of the originally filed dependent Claims 4, 10 and 16 into the originally filed independent Claims 1, 7 and 13, respectively. Since such claim

reductions would not require further search and would not raise any issue of new matter, the amended claims are expected to be entered, and the amended Claim 1 (and similarly Claims 7 and 13) will recite "performing segment 3 training by sending a plurality of CD symbols for a third set of symbol intervals to generate a plurality of coefficients for an adaptive equalizer within said receiving modem, wherein said third set of symbol intervals includes 64 symbol intervals."

On pages 7 and 10 of the Final Office Action, the Examiner states that the claimed segment 3 training is not disclosed under section 8 and table 5/V.29 on pages 7-8 of *ITU-T Recommendation* and *Yaguchi*; however, the Examiner asserts that the claimed segment 3 training is disclosed by *FastPOS* on page 8. Specifically, the Examiner asserts that some of the training parameters from the initial training remembered must be phase 3 of equalizer training "because phase 1 and phase 2 are 'no transmitting energy' and 'alterations' [phase reversal] that evidently doesn't have any parameter to store, and phase 4 are the scrabmled all binary ONEs..."

Applicants disagree with the Examiner's assertions because, according to page 7 of *FastPOS*, *FastPOS* uses a modified sequence of the CCITT V.29 G3 Fax Modem call answer and training sequence, which is different from the training sequence in *ITU-T Recommendation V.29*. Also, *FastPOS* eliminates the V.21 back channel, which may attribute to the "shorter" training sequence. But more importantly, Claim 1 recites "performing segment 4 training by sending a plurality of scrambled binary '1' symbols for a fourth set of symbol intervals to adjust said plurality of coefficients of said adaptive equalizer within said receiving modem." Although all the cited references uses a segment 4 training that includes multiple scrambled binary "1" symbols intervals, the binary "1" symbols intervals in the cited references are not utilized to "adjust said plurality of coefficients of said adaptive equalizer within said receiving modem," as claimed. Even the Examiner has agreed that the segment 4 scrambled binary "1" symbols are not utilized for equalizer training.

Because the cited references, whether considered separately or in combination, do not teach or suggest the claimed invention, the § 103 rejection is believed to be overcome.

CONCLUSION

Claims 1-3, 5-9, 11-15 and 17-18 are currently pending in the present application. For the reasons stated above, Applicants believe independent Claims 1, 7 and 13 along with their respective dependent claims are distinguished over the cited references under § 103, and should be in condition for allowance. The remaining prior art cited by the Examiner, but not relied upon, has been reviewed and is not believed to show or suggest the claimed invention.

No fee or extension of time is believed to be necessary; however, in the event that any fee or extension of time is required for the prosecution of the present application, please charge it against Dillon & Yudell Deposit Account No. **50-3083**.

Respectfully submitted,

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